

**APPENDIX C - CARS BAND/AUXILIARY BROADCAST  
(12750 - 13250 MHz)**

**C1.0 INTRODUCTION**

**C1.1 General**

In this Appendix, a downlink from one Globalstar satellite operating in the 12750 to 13250 MHz CARS/Auxiliary Broadcast microwave band is analyzed. The effects of a Globalstar satellite operating with a variable power flux density ranging from -164.5 to -173.5 dBW/m<sup>2</sup>/4 kHz is investigated into terrestrial receivers located in the following geographic areas:

Tampa, Florida  
Washington, DC  
Chicago, Illinois  
San Mateo, California  
New Orleans, Louisiana

The 12750 to 13250 MHz band is primarily used by the Cable Television and Broadcast Television industries to support their video distribution systems. Both industries use this band for either fixed point-to-point microwave or for remote pickup stations (commonly referred to as Electronic News Gathering or ENG systems).

Remote pickup stations are typically used to transmit local news-related events from the field to the studio. Since the geographic location of these remote pickup stations are usually changing from day-to-day, the interference calculations become very complicated. Due to this complexity, Appendix D will discuss ENG systems while this appendix will address the fixed point-to-point services.

The Cable TV operators typically utilize this spectrum allocation for two different uses. One use is to transmit local area signals (for example, local government hearings or educational programming from a local college) to the central distribution point commonly referred to as the head-end. Usually, the cable TV operators transmit these signals via FM on 12.5 MHz or 25 MHz bandwidth channels. The second use of this spectrum allocation is for multichannel distribution via AM on 6 MHz bandwidth channels from the head-end to hub sites where final delivery to the subscriber is accomplished with coaxial cable.

Due to the recent trend of converting cable TV distribution systems to fiber optics, the number of frequency assignments for fixed multichannel distribution links is expected to decrease.

The Broadcasters use this band primarily for studio-to-transmitter

links and intercity relay. These are usually simplex links utilizing FM/Video transmitters with an emission bandwidth between 12.5 and 25 MHz. As previously mentioned, the band is also utilized by Broadcasters for ENG purposes.

The actual system parameters for fixed microwave paths in each area are analyzed and the received carrier level is compared to the predicted interference received from a Globalstar satellite.

### C1.2 Basis for Analysis

For the downlink analysis the following criteria were used in the analysis.

- Site locations were selected in congested terrestrial microwave areas with varying terrain features and climate-zones. This ensures that a significant magnitude for a diverse variety of terrestrial microwave systems are considered in areas with varying Radio Frequency (RF) propagation characteristics.
- Once the site locations were established, a geographic boundary was defined as a 120 mile square area with the city reference coordinates (as listed in FCC Rule Part 76.53) located in the center of this area. All microwave paths operating within this boundary are considered in this analysis.
- The power flux density (PFD) of the Globalstar satellite signal varies as shown in Tables C2.3-1 from a minimum of -173.5 to a maximum of -164.5 dBW/m<sup>2</sup>/4 kHz.
- The tilt angle of a terrestrial microwave receive antenna was calculated based upon the difference in the overall height above sea level between a path's transmit and receive antennas. The tilt angle was then used to determine the PFD. When the terrestrial antenna is pointed in a downward direction a PFD of -173.5 dBW/m<sup>2</sup>/4 kHz was employed and if the antenna is pointed straight upward a PFD of -164.5 dBW/m<sup>2</sup>/4 kHz was used. For 0 to 90 degrees pointing angles, the maximum PFD coupled with the maximum antenna gain was used.
- This analysis utilizes the fact that a terrestrial microwave antenna will only be main beam illuminated by one Globalstar satellite at a time.
- The bandwidth of the terrestrial receiver is based upon typical receive filter bandwidths currently operating in the appropriate frequency bands and varies depending upon the modulation scheme of the transmitter for:

- Analog (FDM/FM) systems, typical receive filters are approximately two times the emission bandwidth of the transmitter.
  - Digital Systems, a receive filter bandwidth of 1.5 times the emission bandwidth was used.
  - Video Systems (AM and FM) a receiver bandwidth equal to the transmitter bandwidth was used.
- The Globalstar satellite downlink signal consists of 13-1.23 MHz bandwidth signals occupying a 16.5 MHz bandwidth channel with 8 left hand circular polarized (LHCP) channels and 8 right hand circular polarized channels (RHCP) utilizing approximately 200 MHz of bandwidth.
- The critical angle for determining the interfering signal level into a terrestrial receive antenna from a LEO satellite is in the vertical plane. Since the vertical radiation patterns of terrestrial microwave antennas are not usually available from the antenna manufacturers, the following assumption is used in our analysis. It is assumed that due to the geometric symmetry of terrestrial parabolic antennas, the radiation pattern in the vertical plane (perpendicular to the ground) is equivalent to the radiation pattern in the horizontal plane.
- Interference analysis is based on co-channel interference objectives.
- No geographic or man-made obstruction is assumed to exist between the terrestrial microwave antenna and the proposed LEO satellite.
- For terrestrial systems utilizing billboard reflectors as passive repeaters, if the predicted LEO satellite signal level fails to meet or satisfies the prescribed interference criteria at the repeater location it is assumed that the criteria would continue to be missed or satisfied at the final receive station.
- When a terrestrial receive station utilizes a periscope antenna system (consisting of a billboard reflector mounted above ground level which reflects the desired signal toward the ground where a parabolic antenna is pointed straight upward), the LEO satellite signal level was calculated twice. The first method determines the satellite signal level into the terrestrial receiver when the satellite passes the horizon and illuminates the billboard at a PFD of approximately  $-173.5 \text{ dBW/m}^2/4 \text{ kHz}$ . The second method determines the signal level

when the satellite passes directly above the parabolic antenna that is pointed straight upward. Both signal levels were then compared to the appropriate interference objective to determine if the satellite signal level would satisfy the objective in both worst-case interference scenarios.

- Currently applied for and deployed microwave systems were analyzed.

### C1.3 Constraints for Analysis

- The database containing the Auxiliary Broadcast fixed point-to-point records used in this analysis was constructed from the information stated on the FCC application for authorization (FCC Form 313). Earlier versions of the FCC Form 313 did not require applicants to specifically indicate the geographic coordinates, ground elevation, antenna type, antenna centerline height above ground or fixed losses at the receive station. Therefore, the database contains inaccuracies with respect to these records. These inaccuracies affect the accuracy of the calculated tilt angle of the terrestrial receive antenna. CARS stations are not affected by this problem. It is not believed that these inaccuracies will result in significant errors.
- Also, since the interference objectives into video receivers are based upon Carrier-to-Interference ratios and both signals will experience the same fixed losses between the receive antenna and the receiver, the carrier to interference ratio calculated at the receive antenna will not be affected by the possible inaccuracy of receiver fixed losses.

## C2.0 Methodology

### C2.1 General

The approach undertaken in this study is to determine from a practical point of view if the Globalstar satellite downlink with a power flux density ranging from a maximum of -164.5 dBW/m<sup>2</sup>/4 kHz to a minimum of -173.5 dBW/m<sup>2</sup>/4 kHz will cause excessive interference into typical fixed service microwave receivers operating in the 12750 to 13250 MHz band.

For the selected areas, the Comsearch database was searched for all existing licensed records. Interference calculations were performed based on the methodology given in Section 2.1.3 of the main report. The computed carrier-to-interference ratios were then compared to the objectives derived in Section 2.1.2 of the main report. All of

the analyzed cases were then compiled, tabulated and reported in this appendix. Please note that duplicate database records may appear in Table C3.3-2.

## C2.2 Interference Objectives

- Required (C/I) levels from a single 16.5 MHz Globalstar downlink signal are estimated to be:

25 MHz bandwidth FM/Video traffic short haul 54 dB  
12.5 MHz bandwidth FM/Video traffic short haul 57 dB

6 MHz bandwidth AM/Video traffic short haul 61 dB

(Details concerning these C/I levels are presented in Section 2.2 of the main report.)

- Interference objectives into digital receivers are based upon the interference criteria ( $1 \times 10^{-6}$  bit error Threshold-to-Interference Curves) specified by equipment manufacturers. This criteria varies between a co-channel interfering power level of -101 dBm to -105 dBm depending upon the modulation scheme and equipment traffic capacity.

### C2.3 Power Flux Density (Interference Level)

The power flux density into a terrestrial receiver is based on the pointing angle of the terrestrial receive antenna and the associated power flux density levels presented in Table C2.3.1.

Elevation	PFD (dWB/m <sup>2</sup> /4 kHz)
0	-173.5
5	-171.5
10	-169.5
15	-168.5
20	-166.5
25	-165.5
30	-164.5
40	-164.5
50	-164.5
60	-164.5
70	-164.5
80	-164.5
90	-164.5
The PFD has over a 3 dB margin for uneven loading	
TABLE C2.3-1 KU-Band Power Flux Density (PFD)	

## C2.4 APPLICABLE INTERFERENCE LEVELS

### 12750 - 13250 MHz CARS/Auxiliary Broadcast Band

Referencing equation 2-17 in Section 2.1.3, with D=0 and for  $\lambda = 13000$  MHz, the expected interference levels for different bandwidths are:

$$\begin{aligned}I_R &= -178.2 + G_R - FL \text{ dBm/4 kHz} \\I_R &= -146.4 + G_R - FL \text{ dBm/6 MHz} \\I_R &= -143.3 + G_R - FL \text{ dBm/12.5 MHz} \\I_R &= -141.2 + G_R - FL \text{ dBm/20 MHz} \\I_R &= -140.2 + G_R - FL \text{ dBm/25 MHz}\end{aligned}$$

## C3.0 SUMMARY OF RESULTS

### C3.1 General

In this section, the results of the individual areas studied will be presented. The material will be presented for each individual area then the results of all areas analyzed will be collectively summarized. All terrestrial receivers analyzed are presented in Attachment C3.1-1 of this appendix. Please note that Attachment C3.1-1 includes ENG database records which should be disregarded.

### C3.2 Areas Analyzed

#### C3.2.1 Tampa, Florida

There were 71 terrestrial receivers analyzed in the Tampa, Florida area. Table C3.2.1-1 presents a summary of these cases.

Traffic	Total Number of Cases	Met Objective	Unresolved
6 MHz AM/Video 61 dB	45	40	5
12.5 MHz FM/Video 57 dB	8	8	0
25 MHz FM/Video 54 dB	18	18	0
<b>Total</b>	<b>71</b>	<b>66</b>	<b>5</b>

Table C3.2.1-1  
Summary of Cases Analyzed for Tampa, Florida  
12.75 - 13.25 GHz CARS Band

All of the FM/Video receivers met the objectives. For the AM/Video, 88.9 percent of the cases satisfy the short haul interference criteria.

Table C3.2.1-2 presents a summary of the 5 unresolved cases.

Interference Objective	Video Cases				
	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
6 MHz AM/Video 61 dB	2	2	0	0	1
12.5 MHz FM/Video 57 dB	0	0	0	0	0
25 MHz FM/Video 54 dB	0	0	0	0	0
Total	2	2	0	0	1

Table C3.2.1-2  
Unresolved Case Summary Distribution for Tampa, Florida  
12.75 - 13.25 GHz CARS Band

There are 4 cases within 2 dB of the objective or 80 percent of the unresolved cases. The remaining 7.3 dB case needs further analysis.

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### C3.2.2 Washington, DC

All of the cases that appeared in the analysis were video.

There were 209 terrestrial receivers analyzed, in the Washington.

Table C3.2.2-1 presents a summary of these cases.

Traffic	Total Number of Cases	Met Objective	Unresolved
6 MHz AM/Video 61 dB	106	102	4
12.5 MHz FM/Video 57 dB	16	16	0
25 MHz FM/Video 54 dB	123	123	0
<b>Total</b>	<b>245</b>	<b>241</b>	<b>4</b>

Table C3.2.2-1  
Summary of Cases Analyzed for Washington, DC  
12.75 - 13.25 GHz CARS Band

There are 245 cases listed in Table C3.2.2-1 and 98.4 percent met the interference objective. There are four unresolved cases in this area. Table C3.2.2-2 presents a summary of the unresolved cases.

Video Cases					
Interference Objective	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
6 MHz AM/Video 61 dB	0	2	1	1	0
12.5 MHz FM/Video 57 dB	0	0	0	0	0
25 MHz FM/Video 54 dB	0	0	0	0	0

Table 3.2.2-2  
Unresolved Case Summary Distribution for Washington, DC

The worst case is 3.1 dB from meeting the interference objective.  
C3.2.3 Chicago, Illinois

In the Chicago, Illinois area, there were 190 terrestrial receivers

analyzed.

Table C3.2.3-1 presents a summary of the cases analyzed.

Traffic	Total Number of Cases	Met Objective	Unresolved
6 MHz AM/Video 61 dB	125	125	0
12.5 MHz FM/Video 57 dB	20	19	1
25 MHz FM/Video 54 dB	45	44	1
<b>Total</b>	<b>190</b>	<b>188</b>	<b>2</b>
<p style="text-align: center;">Table C3.2.3-1 Summary of Cases Analyzed for Chicago, Illinois 12.75 - 13.25 GHz CARS Band</p>			

There were 188 out of 190 cases that met the interference objective or 98.9 percent. Table C3.2.3-2 presents a summary of the two unresolved cases.

Interference Objective	Video Cases				
	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
6 MHz AM/Video 61 dB	0	0	0	0	0
12.5 MHz FM/Video 57 dB	0	0	0	0	1
25 MHz FM/Video 54 dB	0	1	0	0	0
Total	0	1	0	0	1

Table 3.2.3-2  
Unresolved Case Summary Distribution for Chicago, Illinois

The 25 MHz FM/Video only misses the short term objective by 1.3 dB while the unresolved (16.6 dB) 12.5 MHz FM/Video case needs further analysis.

### C3.2.4 San Mateo, California

There were 266 terrestrial receivers analyzed in the San Mateo, California area.

Table C3.2.4-1 presents a summary of the cases analyzed.

Traffic	Total Number of Cases	Met Objective	Unresolved
6 MHz AM/Video 61 dB	99	98	1
12.5 MHz FM/Video 57 dB	36	36	0
25 MHz FM/Video 54 dB	131	131	0
<b>Total</b>	<b>266</b>	<b>265</b>	<b>1</b>

Table C3.2.4-1  
Summary of Cases Analyzed for San Mateo, California  
12.75 - 13.25 GHz CARS Band

Of the 266 cases analyzed, 99.6 percent met the short haul objectives. Table C3.2.4-2 shows the unresolved case.

Interference Objective	Video Cases				
	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
6 MHz AM/Video 61 dB	1	0	0	0	0
12.5 MHz FM/Video 57 dB	0	0	0	0	0
25 MHz FM/Video 54 dB	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table C3.2.4-2  
Unresolved Case Summary Distribution for San Mateo, California

The case listed in Table C3.2.4-2 is only a 0.5 dB case.

**C3.2.5 New Orleans, Louisiana**

There were 65 terrestrial receiver analyzed in the New Orleans, Louisiana area.

Table C3.2.5-1 presents a summary of the cases analyzed.

Traffic	Total Number of Cases	Met Objective	Unresolved
6 MHz AM/Video 61 dB	43	42	1
12.5 MHz FM/Video 57 dB	14	14	0
25 MHz FM/Video 54 dB	8	8	0
<b>Total</b>	<b>65</b>	<b>64</b>	<b>1</b>

Table C3.2.5-1  
Summary of Cases Analyzed for New Orleans, Louisiana  
12.75 - 13.25 GHz CARS Band

Of the 65 cases analyzed, 98.5 met the short haul objectives. Table C3.2.5-2 shows the unresolved case.

Video Cases					
Interference Objective	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
6 MHz AM/Video 61 dB	0	1	0	0	0
12.5 MHz FM/Video 57 dB	0	0	0	0	0
25 MHz FM/Video 54 dB	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table C3.2.5-2  
Unresolved Case Summary Distribution for New Orleans, Louisiana

The case listed on Table C3.2.5-2 is only a 1.4 dB case.

C3.3 Summary of Results for CARS/Auxiliary Broadcast 12.75 - 1325 GHz Band

The total number of cases and the results are summarized Table C3.1-1.

Summary of Video Cases				
Area Analyzed	Total Number of Cases	Unresolved 25 MHz FM/Video 54 dB	Unresolved 12.5 MHz FM/Video 57 dB	Unresolved 6 MHz AM/Video 61 dB
Tampa, FL	71	0	0	5
Washington, DC	245	0	0	4
Chicago, IL	190	0	1	1
San Mateo, CA	266	0	0	1
New Orleans, LA	65	0	0	1
Total	837	0	1	12

Table C3.3-1  
Case Summary for 5 Major Areas in the 12750 -13250 MHz Band

Of the 837 cases analyzed, 98.4 percent met the short haul interference objectives.

Tables C3.3-2 lists the number of cases and the range of levels that need to be resolved for the relevant modulations and their corresponding bandwidth.

	0-1 dB	1-2 dB	2-3 dB	3-6 dB	6-10 dB
<b>6 MHz VSB AM/Video</b>	3	5	1	1	1
<b>12.5 MHz FM/Video</b>	0	0	0	0	1 <sup>(1)</sup>
<b>25 MHz FM/Video</b>	0	1	0	0	0
<b>% of Cases Missing Objectives (13)</b>	23.1	46.1	7.7	7.7	15.4
<b>% of Total Case Analyzed (837)</b>	0.36	0.72	0.11	0.11	0.23
<b>Table C3.3-2</b> <b>C/I Case Distribution for Five Major Areas</b> <b>Areas in the 12.75 - 13.25 GHz Band</b>					
Note (1) 16.6 dB Case					

Table C3.3-2 shows very few cases which did not meet the objective. The large number of cases which met the objective could be attributed to the low C/I requirements (54 dB) for short haul 13 GHz systems. The VSB AM/Video required a higher C/I ratio of 61 dB. The 61 dB coupled with very low receive carrier level, gave rise to the reported cases. The one case within the 3-6 dB range missed the objective by 3.1 dB.

In the 6-10 dB range, one case missed the objective by 7.3 dB. This case has an exceptionally low receive carrier level of -54.2 dBm, which is about 9 dB lower than the average of -45 dBm. There was one 12.5 MHz case that is 16.6 dB from the objective.

Generally, in this band if the carrier level is low and the receiving antenna is pointing up without attaining any discrimination towards the satellite, the calculations acknowledge the possibility of missing the interference objective.

Similar interference reduction techniques can be applied as given in Section 3.1.1.

**APPENDIX C**  
**ATTACHMENT**  
**TABLE C3.1-1 CASES ANALYZED**

ATTACHMENT C3.1-1 CASES ANALYZED

Tampa, Florida

Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dBi)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)	
286.	BEVERL	13000.0	-54.2	AA1211	0.2	DOWN	47.6	0.0	6000	BUF623	VIDEO	-98.9	44.7	-173.5	9.0	53.7		
3.	MULBER	13000.0	-47.4	AA1312	0.1	UP	48.8	0.0	6000	2K7G01	VIDEO	-97.7	50.3	-173.5	9.0	59.2		
237.	MTOORA	13000.0	-52.2	AA1312	0.2	DOWN	48.8	5.0	6000	TEM170	VIDEO	-102.7	50.4	-173.5	9.0	59.4		
141.	EASTHI	13000.0	-46.5	AA1312	0.4	DOWN	48.8	0.0	6000	TEM201	VIDEO	-97.7	51.2	-173.5	9.0	60.2		
1.	RXONLY	13000.0	-48.4	099999	0.7	DOWN	40.0	0.0	25000	000000	VIDEO	-100.3	51.8	-173.5	9.0	60.8		
2.	RXONLY	13000.0	-48.4	099999	0.7	DOWN	40.0	0.0	25000	000000	VIDEO	-100.3	51.8	-173.5	9.0	60.8		
225.	OKAHUM	13000.0	-49.9	AA1312	0.2	DOWN	48.8	4.0	6000	TEM328	VIDEO	-101.7	51.8	-173.5	9.0	60.8		
113.	WESTPA	13000.0	-45.9	S14004	0.2	DOWN	47.8	0.0	6000	BUF623	VIDEO	-98.7	52.8	-173.5	9.0	61.8		
27.	EASTON	13000.0	-43.9	S15003	0.2	DOWN	49.0	0.0	6000	BUF623	VIDEO	-97.5	53.6	-173.5	9.0	62.6		
272.	SFLORI	13000.0	-44.6	S14004	0.6	DOWN	47.8	0.0	6000	BUF624	VIDEO	-98.7	54.0	-173.5	9.0	63.0		
212.	GIBSON	13000.0	-46.6	S13006	0.2	UP	45.3	0.0	6000	2K7G01	VIDEO	-101.2	54.6	-173.4	8.9	63.5		
199.	LAKELA	13000.0	-46.0	S13006	0.3	UP	45.3	0.0	6000	BUF651	VIDEO	-101.2	55.2	-173.4	8.9	64.0		
37.	NEOFON	13000.0	-43.2	S14004	0.2	DOWN	47.8	0.0	6000	BUF623	VIDEO	-98.7	55.5	-173.5	9.0	64.5		
127.	TIERRA	13000.0	-40.8	AA1133	0.2	DOWN	45.1	0.0	6000	BUF623	VIDEO	-101.4	60.6	-173.5	9.0	69.6		
36.	VENICE	13000.0	-33.4	R13300	0.2	DOWN	42.2	1.0	25000	24S604	VIDEO	-99.1	65.7	-173.5	9.0	74.7		
246.	PASCO2	13000.0	-31.9	*14000	0.1	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	67.0	-173.5	9.0	76.0		
72.	WHZ411	13000.0	-28.7	AA1315	0.3	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	69.0	-173.5	9.0	78.0		
176.	STPETE	13000.0	-32.9	A12420	0.5	DOWN	41.4	0.0	12500	2BVY02	VIDEO	-101.9	69.0	-173.5	9.0	78.0		
295.	HOMOSA	13000.0	-27.5	P15200	0.4	UP	49.4	0.0	6000	24S607	VIDEO	-97.1	69.6	-173.3	8.8	78.4		
174.	STPETE	13000.0	-22.0	A15110	0.2	DOWN	48.8	0.0	25000	2R1501	VIDEO	-91.5	69.5	-173.5	9.0	78.5		
104.	WGS885	13000.0	-26.8	AA1315	0.2	DOWN	48.8	0.0	6000	2K7101	VIDEO	-97.7	70.9	-173.5	9.0	79.9		
70.	WGR952	13000.0	-26.7	AA1315	0.2	DOWN	48.8	0.0	6000	2K7101	VIDEO	-97.7	71.0	-173.5	9.0	80.0		
112.	WG2023	13000.0	-20.2	A15120	0.2	DOWN	48.8	0.0	25000	24S604	VIDEO	-91.5	71.2	-173.5	9.0	80.2		
306.	SWPACO	13000.0	-26.5	AA1315	0.2	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	71.2	-173.5	9.0	80.2		
255.	MASARY	13000.0	-27.2	AA1211	0.2	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	71.6	-173.5	9.0	80.6		
106.	LARGO	13000.0	-26.1	AA1142	0.2	DOWN	45.1	0.0	12500	2K8D01	VIDEO	-98.2	72.0	-173.5	9.0	81.0		
109.	CLEAR	13000.0	-26.3	AA1214	0.1	DOWN	47.6	0.0	6000	2K8D01	VIDEO	-98.9	72.5	-173.5	9.0	81.5		
122.	NPINE	13000.0	-25.1	AA1315	0.3	DOWN	48.8	0.0	6000	2PUY06	VIDEO	-97.7	72.5	-173.5	9.0	81.5		
135.	PINPAR	13000.0	-25.1	AA1315	0.1	DOWN	48.8	0.0	6000	2PUY06	VIDEO	-97.7	72.5	-173.5	9.0	81.5		
152.	LONGBO	13000.0	-24.9	AA1211	0.2	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	74.0	-173.5	9.0	83.0		
183.	BUFFAL	13000.0	-23.6	AA1315	0.1	DOWN	48.8	0.0	5750	A5C	6000	2K7101	VIDEO	-97.7	74.1	-173.5	9.0	83.1
175.	STPETE	13000.0	-23.6	AA1142	0.3	DOWN	45.1	0.0	12500	2K8D01	VIDEO	-98.2	74.6	-173.5	9.0	83.6		
173.	STPETE	13000.0	-20.5	*13000	0.1	DOWN	45.1	0.0	25000	000000	VIDEO	-95.2	74.7	-173.5	9.0	83.7		
44.	PEPPER	13000.0	-23.6	AA1211	0.2	UP	47.6	0.0	6000	2K7G01	VIDEO	-98.9	75.3	-173.4	8.9	84.1		
304.	SWPACO	13000.0	-22.5	AA1315	0.2	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	75.2	-173.5	9.0	84.2		
179.	BUFFAL	13000.0	-23.6	AA1214	0.3	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	75.3	-173.5	9.0	84.3		
184.	TAMPA	13000.0	-23.6	AA1214	0.0	DOWN	47.6	0.0	5750	A5C	6000	2K7G01	VIDEO	-98.9	75.3	-173.5	9.0	84.3
184.	BUFFAL	13000.0	-23.6	AA1214	0.1	DOWN	47.6	0.0	5750	A5C	6000	2K7101	VIDEO	-98.9	75.3	-173.5	9.0	84.3
185.	SWBUFF	13000.0	-22.4	AA1315	0.3	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	75.3	-173.5	9.0	84.3		
234.	RXONLY	13000.0	-19.9	*13000	0.5	DOWN	45.1	0.0	25000	000000	VIDEO	-95.2	75.3	-173.5	9.0	84.3		
16.	VAMO	13000.0	-22.1	A15120	0.2	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	75.5	-173.5	9.0	84.5		
263.	NWPASC	13000.0	-23.4	AA1214	0.2	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	75.5	-173.5	9.0	84.5		
161.	BRITTO	13000.0	-23.1	AA1214	0.3	DOWN	47.6	0.0	6000	2K7G01	VIDEO	-98.9	75.8	-173.5	9.0	84.8		
57.	NEBAVE	13000.0	-21.7	AA1315	0.3	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	76.0	-173.5	9.0	85.0		
236.	RXONLY	13000.0	-19.0	AA1133	0.5	DOWN	45.1	0.0	25000	AB0004	VIDEO	-95.2	76.2	-173.5	9.0	85.2		

Tampa, Florida

Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dBi)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)
25.	CAMPUS	13000.0	-21.2	AA1315	0.3	DOWN	48.8	0.0		6000	2K7I01	VIDEO	-97.7	76.5	-173.5	9.0	85.5
84.	WGR952	13000.0	-22.4	AA1214	0.2	DOWN	47.6	0.0		6000	2K7I01	VIDEO	-98.9	76.5	-173.5	9.0	85.5
183.	TAMPA	13000.0	-22.4	AA1214	0.0	DOWN	47.6	0.0	5750A5C	6000	2K7G01	VIDEO	-98.9	76.5	-173.5	9.0	85.5
68.	WGR952	13000.0	-21.7	AA1214	0.3	DOWN	47.6	0.0		6000	2K7I01	VIDEO	-98.9	77.2	-173.5	9.0	86.2
177.	BUFF	13000.0	-21.7	AA1214	0.3	DOWN	47.6	0.0		6000	2K7G01	VIDEO	-98.9	77.2	-173.5	9.0	86.2
111.	CLEAR	13000.0	-18.3	AA1214	0.1	DOWN	47.6	0.0		12500	2K8D01	VIDEO	-95.7	77.3	-173.5	9.0	86.3
126.	NPINE	13000.0	-17.1	AA1315	0.3	DOWN	48.8	0.0		12500	2IH202	VIDEO	-94.5	77.3	-173.5	9.0	86.3
139.	PINPAR	13000.0	-17.1	AA1315	0.1	DOWN	48.8	0.0		12500	2IH202	VIDEO	-94.5	77.3	-173.5	9.0	86.3
271.	MOONLA	13000.0	-18.0	AA1203	0.2	DOWN	47.6	0.0		12500	2K7G01	VIDEO	-95.7	77.6	-173.5	9.0	86.6
197.	RXONLY	13000.0	-21.0	AA1033	0.3	UP	41.5	0.0		25000	24S604	VIDEO	-98.8	77.8	-173.4	8.9	86.7
55.	WGR952	13000.0	-21.1	AA1214	0.3	DOWN	47.6	0.0		6000	2K7I01	VIDEO	-98.9	77.8	-173.5	9.0	86.8
108.	WHZ982	13000.0	-17.1	AA1214	0.2	DOWN	47.6	0.0		12500	24S607	VIDEO	-95.7	78.5	-173.5	9.0	87.5
86.	WGS885	13000.0	-20.2	AA1203	0.3	DOWN	47.6	0.0		6000	2K7G01	VIDEO	-98.9	78.7	-173.5	9.0	87.7
97.	WGR952	13000.0	-20.2	AA1203	0.3	DOWN	47.6	0.0		6000	2K7G01	VIDEO	-98.9	78.7	-173.5	9.0	87.7
196.	RXONLY	13000.0	-18.5	*12000	0.4	UP	41.5	0.0		25000	2ZF002	VIDEO	-98.8	80.3	-173.3	8.8	89.1
172.	WTGST	13000.0	-18.0	AA1033	0.3	UP	41.5	0.0		25000	000000	VIDEO	-98.8	80.8	-173.3	8.8	89.6
235.	RXONLY	13000.0	-14.5	AA1133	0.5	DOWN	45.1	0.0		25000	AB0004	VIDEO	-95.2	80.6	-173.5	9.0	89.6
268.	NWPASC	13000.0	-17.0	AA1315	0.3	DOWN	48.8	0.0		6000	2K7G01	VIDEO	-97.7	80.7	-173.5	9.0	89.7
140.	WLQ289	13000.0	-11.4	AA1211	0.2	DOWN	47.6	0.0	F9	25000	000000	VIDEO	-92.7	81.3	-173.5	9.0	90.3
140.	WLQ300	13000.0	-11.4	AA1211	0.0	UP	47.6	0.0	F9	25000	000000	VIDEO	-92.7	81.3	-173.5	9.0	90.3
53.	CAMPUS	13000.0	-19.9	AA1142	0.3	DOWN	45.1	0.0		6000	2K7I01	VIDEO	-101.4	81.4	-173.5	9.0	90.4
34.	TAMPA	13000.0	-13.0	A12110	2.2	UP	41.5	0.0		25000	000000	VIDEO	-98.8	85.8	-172.5	8.0	93.8
198.	RXONLY	13000.0	-10.9	*12000	2.5	DOWN	41.5	0.0		25000	000000	VIDEO	-98.8	87.8	-173.5	9.0	96.8
15.	MADISO	13000.0	-9.5	AA1033	0.3	UP	41.5	0.0		25000	24S602	VIDEO	-98.8	89.3	-173.3	8.8	98.1
35.	RXONLY	13000.0	0.3	*12000	7.4	UP	41.5	0.0		25000	24S604	VIDEO	-98.8	99.0	-170.4	5.9	105.0
107.	WHZ982	13000.0	-31.1	AA1214	0.2	DOWN	47.6	0.0		6000	2Y7Q03	DIGITAL	-98.9	67.7	-173.5	9.0	-107.9

Washington, District of Columbia

Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dbi)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)	
254.	RXONLY	13000.0	-88.5	010000	0.3	DOWN	13.0	0.0	25000	000000	1	CH MSG	-127.3	38.7	-173.5	9.0	47.7	
33.	RXONLY	13000.0	-114.9	010000	0.2	DOWN	13.0	0.0	25000	2K8H01	VIDEO		-127.3	12.4	-173.5	9.0	21.4	
1.	38-53	13000.0	-104.4	000000	0.3	DOWN	10.0	0.0	25000	000000	VIDEO		-130.3	25.8	-173.5	9.0	34.8	
146.	RXONLY	13000.0	-94.9	010000	0.2	DOWN	13.0	0.0	25000	24S604	VIDEO		-127.3	32.4	-173.5	9.0	41.4	
24.	TEMPY	13000.0	-89.4	010000	0.3	DOWN	13.0	0.0	25000	NURAD1	VIDEO		-127.3	37.9	-173.5	9.0	46.9	
318.	WGJ469	13000.0	-60.5	AA1203	0.7	DOWN	47.6	4.0	12500	MOBILE	VIDEO		-99.7	39.2	-173.5	9.0	48.2	
30.	TEMPY	13000.0	-89.4	010000	0.3	DOWN	13.0	0.0	12500	NURAD1	VIDEO		-130.3	40.9	-173.5	9.0	49.9	
1040.	RXONLY	13000.0	-85.9	010000	0.2	DOWN	13.0	0.0	25000	2K8H01	VIDEO		-127.3	41.4	-173.5	9.0	50.4	
25.	TEMPY	13000.0	-81.4	010000	0.2	DOWN	13.0	0.0	25000	NURAD1	VIDEO		-127.3	45.9	-173.5	9.0	54.9	
1068.	HARLEN	13000.0	-48.1	S15003	1.0	UP	49.0	0.0	6000	BUF610	VIDEO		-97.5	49.4	-173.0	8.5	57.9	
1082.	LODGE	13000.0	-47.9	AA1312	0.9	UP	48.8	0.0	6000	BUF610	VIDEO		-97.7	49.8	-173.1	8.6	58.3	
245.	STAFFO	13000.0	-47.0	AA1312	0.2	DOWN	48.8	0.0	6000	2YX511	VIDEO		-97.7	50.6	-173.5	9.0	59.6	
1054.	BAKER	13000.0	-46.0	S15003	1.4	UP	49.0	0.0	6000	BUF610	VIDEO		-97.5	51.5	-172.8	8.3	59.8	
454.	WHYS46	13000.0	-47.5	*12000	0.0	DOWN	41.5	0.0	25000	F9	25000	2K8D02	VIDEO	-98.8	51.3	-173.5	9.0	60.3
54.	CHURCH	13000.0	-45.5	S15003	0.1	DOWN	49.0	0.0	6000	BUF624	VIDEO		-97.5	52.0	-173.5	9.0	61.0	
680.	RXONLY	13000.0	-55.8	A11401	0.3	DOWN	35.5	0.0	12500	2K8H03	VIDEO		-107.8	52.0	-173.5	9.0	61.0	
740.	BROOK	13000.0	-45.4	A15320	0.2	DOWN	48.8	0.0	6000	TEMPS2	VIDEO		-97.7	52.3	-173.5	9.0	61.3	
222.	RXONLY	13000.0	-74.9	010000	0.1	DOWN	13.0	0.0	25000	MOBILE	VIDEO		-127.3	52.4	-173.5	9.0	61.4	
529.	KELLOG	13000.0	-45.3	AA1312	0.3	DOWN	48.8	0.0	6000	2Y5B07	VIDEO		-97.7	52.4	-173.5	9.0	61.4	
615.	ARLING	13000.0	-47.3	AA1312	0.1	DOWN	48.8	2.0	6000	2K7G01	VIDEO		-99.7	52.4	-173.5	9.0	61.4	
625.	RXONLY	13000.0	-74.8	010000	0.1	DOWN	13.0	0.0	25000	MOBILE	VIDEO		-127.3	52.4	-173.5	9.0	61.4	
649.	RECWAS	13000.0	-74.9	010000	0.1	DOWN	13.0	0.0	25000	MOBILE	VIDEO		-127.3	52.4	-173.5	9.0	61.4	
15.	BIVALV	13000.0	-44.7	A15120	0.2	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	53.0	-173.5	9.0	62.0	
924.	GAMBRI	13000.0	-48.5	AA1306	2.3	DOWN	48.8	4.0	6000	2YAH03	VIDEO		-101.7	53.2	-173.5	9.0	62.2	
10.	BIVALV	13000.0	-44.3	A15120	0.2	DOWN	48.8	0.0	6000	BUF610	VIDEO		-97.7	53.3	-173.5	9.0	62.3	
115.	SUDLER	13000.0	-44.2	A15120	0.2	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	53.5	-173.5	9.0	62.5	
53.	BERTHA	13000.0	-37.9	AA1312	0.2	DOWN	48.8	0.0	25000	2K7101	VIDEO		-91.5	53.6	-173.5	9.0	62.6	
63.	MTHARM	13000.0	-37.9	AA1312	0.2	DOWN	48.8	0.0	25000	2K7101	VIDEO		-91.5	53.6	-173.5	9.0	62.6	
570.	POSTOA	13000.0	-44.0	AA1312	0.3	DOWN	48.8	0.0	6000	2Y5B07	VIDEO		-97.7	53.7	-173.5	9.0	62.7	
132.	TRAPPE	13000.0	-43.8	A15120	0.2	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	53.9	-173.5	9.0	62.9	
785.	HARPER	13000.0	-44.7	A15120	0.2	DOWN	48.8	1.0	6000	2YX508	VIDEO		-98.7	53.9	-173.5	9.0	62.9	
509.	LAKWEI	13000.0	-43.4	AA1312	0.3	DOWN	48.8	0.0	6000	2YX508	VIDEO		-97.7	54.3	-173.5	9.0	63.3	
1096.	INWOOD	13000.0	-43.2	AA1211	2.5	UP	47.6	0.0	6000	BUF610	VIDEO		-98.9	55.7	-172.4	7.9	63.5	
94.	CHESTE	13000.0	-43.1	A15120	0.2	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	54.6	-173.5	9.0	63.6	
647.	RXONLY	13000.0	-72.3	010000	0.1	DOWN	13.0	0.0	25000	MOBILE	VIDEO		-127.3	55.0	-173.5	9.0	64.0	
648.	RXONLY	13000.0	-72.3	010000	0.1	DOWN	13.0	0.0	25000	MOBILE	VIDEO		-127.3	55.0	-173.5	9.0	64.0	
430.	WGK292	13000.0	-49.2	A11401	0.6	UP	35.5	0.0	25000	2BVY02	VIDEO		-104.8	55.5	-173.2	8.7	64.2	
253.	RECEIV	13000.0	-71.9	010000	0.2	DOWN	13.0	0.0	25000	24S604	VIDEO		-127.3	55.3	-173.5	9.0	64.3	
698.	SEVERN	13000.0	-42.2	A15320	0.3	UP	48.8	0.0	6000	TEMPS2	VIDEO		-97.7	55.5	-173.3	8.8	64.3	
780.	HAGERS	13000.0	-42.7	AA1211	1.5	UP	47.6	0.0	6000	TEM025	VIDEO		-98.9	56.1	-172.8	8.3	64.4	
101.	ROCKHA	13000.0	-41.9	A15120	0.1	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	55.7	-173.5	9.0	64.7	
108.	GREENS	13000.0	-41.9	A15120	0.1	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	55.7	-173.5	9.0	64.7	
497.	RXONLY	13000.0	-62.4	N31000	0.3	UP	26.0	4.0	25000	NURAD1	VIDEO		-118.3	55.9	-173.4	8.9	64.7	
3.	DENTON	13000.0	-41.9	A15120	0.1	DOWN	48.8	0.0	6000	BUF612	VIDEO		-97.7	55.8	-173.5	9.0	64.8	
131.	GOLDEN	13000.0	-35.6	AA1312	0.1	DOWN	48.8	0.0	25000	2K7101	VIDEO		-91.5	55.9	-173.5	9.0	64.9	
852.	SHENAN	13000.0	-45.9	AA1211	0.3	DOWN	47.6	3.0	6000	2YX508	VIDEO		-101.9	56.0	-173.5	9.0	65.0	
233.	WEAPON	13000.0	-42.7	AA1211	0.2	DOWN	47.6	0.0	6000	BUF625	VIDEO		-98.9	56.2	-173.5	9.0	65.2	

Washington, District of Columbia

Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dBi)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)
979.	SHANNO	13000.0	-41.4	AA1312	1.7	DOWN	48.8	0.0	6000	TEM200	VIDEO	-97.7	56.3	-173.5	9.0	65.3	
139.	STMICH	13000.0	-41.2	A15120	0.1	DOWN	48.8	0.0	6000	BUF612	VIDEO	-97.7	56.4	-173.5	9.0	65.4	
159.	LAKEAN	13000.0	-41.3	AA1312	0.3	DOWN	48.8	0.0	6000	2YX508	VIDEO	-97.7	56.4	-173.5	9.0	65.4	
498.	RXONLY	13000.0	-61.8	N31000	0.6	DOWN	26.0	4.0	25000	NURAD1	VIDEO	-118.3	56.5	-173.5	9.0	65.5	
613.	ARLING	13000.0	-42.2	A12420	1.1	DOWN	41.4	0.0	25000	2GGF01	VIDEO	-98.9	56.7	-173.5	9.0	65.7	
437.	NEBRAS	13000.0	-47.4	*11000	0.6	UP	35.5	0.0	25000	2GGF02	VIDEO	-104.8	57.3	-173.2	8.7	66.0	
436.	RXONLY	13000.0	-47.4	*11000	0.5	UP	35.5	0.0	25000	2GGF02	VIDEO	-104.8	57.3	-173.2	8.7	66.1	
434.	CBSNEW	13000.0	-41.5	*12000	0.1	DOWN	41.5	0.0	25000	2KB002	VIDEO	-98.8	57.3	-173.5	9.0	66.3	
603.	ARLING	13000.0	-41.3	A15120	0.2	DOWN	48.8	1.0	6000	2K7G01	VIDEO	-98.7	57.4	-173.5	9.0	66.4	
692.	WAB209	13000.0	-34.5	*14000	0.1	DOWN	47.6	0.0	F9	25000	000000	VIDEO	-92.7	58.2	-173.5	9.0	67.2
87.	KENTIS	13000.0	-39.6	AA1211	0.3	UP	47.6	0.0	6000	BUF612	VIDEO	-98.9	59.2	-173.4	8.9	68.1	
688.	WAA991	13000.0	-32.0	*15000	0.3	UP	48.8	0.0	F9	25000	000000	VIDEO	-91.5	59.5	-173.3	8.8	68.3
35.	EDGEWA	13000.0	-38.1	S15003	0.2	DOWN	49.0	0.0	6000	BUF624	VIDEO	-97.5	59.4	-173.5	9.0	68.4	
44.	BERTHA	13000.0	-37.9	AA1312	0.2	DOWN	48.8	0.0	6000	2K7I01	VIDEO	-97.7	59.8	-173.5	9.0	68.8	
64.	MTHARM	13000.0	-37.9	AA1312	0.2	DOWN	48.8	0.0	6000	2K7I01	VIDEO	-97.7	59.8	-173.5	9.0	68.8	
589.	SPRING	13000.0	-39.9	AA1203	0.2	UP	47.6	1.0	6000	2K7G01	VIDEO	-99.9	59.9	-173.4	8.9	68.8	
879.	GAITHE	13000.0	-41.1	AA1211	0.2	DOWN	47.6	2.0	6000	2K7G01	VIDEO	-100.9	59.8	-173.5	9.0	68.8	
543.	WJLATV	13000.0	-42.1	AA1133	0.2	DOWN	45.1	7.0	25000	24S604	VIDEO	-102.2	60.1	-173.5	9.0	69.1	
808.	BROWNS	13000.0	-37.1	A15310	0.1	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	60.5	-173.5	9.0	69.5	
627.	MTVERN	13000.0	-41.5	A15310	0.2	UP	48.8	5.0	6000	2K7G01	VIDEO	-102.7	61.1	-173.4	8.9	70.0	
724.	WHITEO	13000.0	-36.6	A15310	0.1	DOWN	48.8	0.0	6000	2K7G01	VIDEO	-97.7	61.1	-173.5	9.0	70.1	
73.	NAVALR	13000.0	-37.2	S14004	0.2	UP	47.8	0.0	6000	BUF624	VIDEO	-98.7	61.5	-173.4	8.9	70.4	
940.	THURMO	13000.0	-41.8	AA1211	1.3	UP	47.6	5.0	6000	2K7G04	VIDEO	-103.9	62.0	-172.9	8.4	70.4	
459.	HAYMAR	13000.0	-36.1	AA1312	0.3	DOWN	48.8	0.0	6000	2Y5K07	VIDEO	-97.7	61.5	-173.5	9.0	70.5	
175.	RXONLY	13000.0	-37.0	*12000	0.3	UP	41.5	0.0	25000	NURAD1	VIDEO	-98.8	61.8	-173.3	8.8	70.6	
441.	NEBRAS	13000.0	-37.2	AA1011	1.7	DOWN	41.4	0.0	25000	27CX01	VIDEO	-98.9	61.6	-173.5	9.0	70.6	
839.	CHARLE	13000.0	-38.0	AA1211	0.1	DOWN	47.6	1.0	6000	2K7G01	VIDEO	-99.9	61.9	-173.5	9.0	70.9	
319.	GREATF	13000.0	-40.8	AA1203	0.2	DOWN	47.6	4.0	6000	2K7G01	VIDEO	-102.9	62.0	-173.5	9.0	71.0	
337.	WGJ470	13000.0	-36.9	AA1203	1.0	DOWN	47.6	0.0	6000	2Y7Q03	VIDEO	-98.9	62.0	-173.5	9.0	71.0	
636.	MTVERN	13000.0	-38.6	A15310	0.2	UP	48.8	3.0	6000	2K7G01	VIDEO	-100.7	62.0	-173.4	8.9	71.0	
122.	GOLDEN	13000.0	-35.6	AA1312	0.1	DOWN	48.8	0.0	6000	2K7I01	VIDEO	-97.7	62.1	-173.5	9.0	71.1	
553.	LORTON	13000.0	-38.3	A15310	0.2	UP	48.8	3.0	6000	2K7G01	VIDEO	-100.7	62.3	-173.4	8.9	71.2	
174.	RXONLY	13000.0	-36.3	*12000	0.3	UP	41.5	0.0	25000	NURAD1	VIDEO	-98.8	62.4	-173.3	8.8	71.3	
684.	WAA925	13000.0	-32.6	*13000	0.4	UP	45.1	0.0	F9	25000	000000	VIDEO	-95.2	62.6	-173.3	8.8	71.4
408.	GREATF	13000.0	-40.2	AA1203	0.2	UP	47.6	4.0	6000	2K7G01	VIDEO	-102.9	62.7	-173.4	8.9	71.6	
752.	TOWSON	13000.0	-33.0	A16620	0.2	DOWN	50.8	0.0	6000	2PUY01	VIDEO	-95.7	62.7	-173.5	9.0	71.7	
770.	ESSEX	13000.0	-32.9	A16620	0.1	UP	50.8	0.0	6000	2PUY01	VIDEO	-95.7	62.8	-173.5	9.0	71.7	
492.	RXONLY	13000.0	-35.7	*12000	0.4	UP	41.5	0.0	25000	NURAD1	VIDEO	-98.8	63.0	-173.3	8.8	71.8	
753.	TOWSON	13000.0	-32.9	A16620	0.2	DOWN	50.8	0.0	6000	2PUY01	VIDEO	-95.7	62.8	-173.5	9.0	71.8	
915.	POOLES	13000.0	-38.1	AA1211	0.1	DOWN	47.6	2.0	6000	2K7G01	VIDEO	-100.9	62.8	-173.5	9.0	71.8	
1014.	MTAIRY	13000.0	-36.7	AA1211	0.4	UP	47.6	1.0	6000	2K7G01	VIDEO	-99.9	63.2	-173.3	8.8	72.0	
328.	MCLEAN	13000.0	-39.3	AA1103	0.2	DOWN	45.1	1.0	6000	2K7G01	VIDEO	-102.4	63.1	-173.5	9.0	72.1	
169.	FREDRI	13000.0	-38.7	A12420	0.4	DOWN	41.4	0.0	12500	24S604	VIDEO	-101.9	63.2	-173.5	9.0	72.2	
598.	FREDER	13000.0	-38.5	*12000	0.0	DOWN	41.5	0.0	12500	2UQ801	VIDEO	-101.8	63.3	-173.5	9.0	72.3	
189.	MASON	13000.0	-36.2	AA1203	0.3	UP	47.6	1.0	6000	2K7G01	VIDEO	-99.9	63.6	-173.4	8.9	72.5	
390.	WGJ469	13000.0	-38.9	A15800	0.3	UP	48.9	5.0	6000	2K7G01	VIDEO	-102.6	63.7	-173.3	8.8	72.5	
151.	WAF859	13000.0	-35.3	A12420	0.9	DOWN	41.4	0.0	25000	2GGF01	VIDEO	-98.9	63.6	-173.5	9.0	72.6	

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Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dbi)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)
671.	OXROAD	13000.0	-38.9	A15800	0.4	DOWN	48.9	5.0		6000	2K7G01	VIDEO	-102.6	63.7	-173.5	9.0	72.7
866.	SHEPHE	13000.0	-33.6	A15120	0.6	UP	48.8	0.0		6000	2K7G01	VIDEO	-97.7	64.0	-173.2	8.7	72.7
300.	HERNDO	13000.0	-40.1	AA1203	0.3	DOWN	47.6	5.0		6000	2K7G01	VIDEO	-103.9	63.8	-173.5	9.0	72.8
1035.	MTPLEA	13000.0	-38.1	AA1133	0.8	UP	45.1	1.0		6000	2K7G01	VIDEO	-102.4	64.2	-173.1	8.6	72.8
693.	FALLST	13000.0	-33.8	A15120	0.3	DOWN	48.8	0.0		6000	2K7G01	VIDEO	-97.7	63.9	-173.5	9.0	72.9
266.	WESTSP	13000.0	-38.6	AA1211	0.2	UP	47.6	4.0		6000	2K7G01	VIDEO	-102.9	64.3	-173.4	8.9	73.2
544.	LORTON	13000.0	-38.3	A15310	0.1	UP	48.8	5.0		6000	2K7G01	VIDEO	-102.7	64.3	-173.4	8.9	73.3
691.	WAB209	13000.0	-34.5	AA1203	0.1	UP	47.6	0.0	5750A5C	6000	2PU701	VIDEO	-98.9	64.4	-173.4	8.9	73.3
440.	NEBRAS	13000.0	-34.2		0.5	UP	41.4	0.0		25000	2GGF02	VIDEO	-98.9	64.6	-173.3	8.8	73.4
689.	WAB209	13000.0	-34.5	AA1203	0.1	DOWN	47.6	0.0		6000	2PUY01	VIDEO	-98.9	64.4	-173.5	9.0	73.4
799.	WHITEO	13000.0	-33.1	A15310	0.1	DOWN	48.8	0.0		6000	2K7G01	VIDEO	-97.7	64.5	-173.5	9.0	73.5
309.	RESTON	13000.0	-37.8	AA1103	0.5	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	64.6	-173.5	9.0	73.6
474.	CLIFTO	13000.0	-40.2	AA1203	0.2	DOWN	47.6	6.0		6000	2K7G01	VIDEO	-104.9	64.7	-173.5	9.0	73.7
748.	JOPPA	13000.0	-32.8	A15120	0.2	UP	48.8	0.0		6000	2K7G01	VIDEO	-97.7	64.9	-173.4	8.9	73.7
775.	DUNDAL	13000.0	-30.8	A16620	0.3	UP	50.8	0.0		6000	2PUY01	VIDEO	-95.7	64.8	-173.3	8.8	73.7
580.	SPRING	13000.0	-37.4	AA1103	0.2	UP	45.1	1.0		6000	2K7G01	VIDEO	-102.4	65.0	-173.4	8.9	73.9
763.	BROWNS	13000.0	-32.8	A15310	0.0	DOWN	48.8	0.0		6000	2K7G01	VIDEO	-97.7	64.9	-173.5	9.0	73.9
372.	RESTON	13000.0	-37.1	AA1103	0.4	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	65.3	-173.5	9.0	74.3
667.	RXONLY	13000.0	-32.9	AA1133	0.4	DOWN	45.1	0.0		12500	2BVY02	VIDEO	-98.2	65.3	-173.5	9.0	74.3
717.	BROOK	13000.0	-31.7	AA1312	0.4	UP	48.8	0.0		6000	2K7I01	VIDEO	-97.7	65.9	-173.3	8.8	74.7
927.	WHZ620	13000.0	-34.9	AA1211	2.2	UP	47.6	3.0		6000	2K7G01	VIDEO	-101.9	67.0	-172.5	8.0	75.0
255.	LENFAN	13000.0	-38.2	A11401	0.7	UP	35.5	0.0		25000	2BVY02	VIDEO	-104.8	66.5	-173.1	8.6	75.2
758.	ARNOL	13000.0	-31.3	AA1312	0.1	UP	48.8	0.0		6000	2K7I01	VIDEO	-97.7	66.3	-173.4	8.9	75.3
685.	WAA991	13000.0	-30.8	A15120	0.5	UP	48.8	0.0		6000	2PUY01	VIDEO	-97.7	66.9	-173.3	8.8	75.7
650.	EXECUT	13000.0	-32.0	AA1203	0.6	DOWN	47.6	0.0		6000	2Y5K07	VIDEO	-98.9	66.8	-173.5	9.0	75.8
1027.	MTPLEA	13000.0	-34.1	AA1133	0.8	UP	45.1	0.0		6000	2K7G01	VIDEO	-101.4	67.2	-173.1	8.6	75.8
712.	JACOB	13000.0	-31.7	AA1211	0.2	UP	47.6	0.0		6000	2K7I01	VIDEO	-98.9	67.1	-173.4	8.9	76.0
339.	MEDIAO	13000.0	-38.9	AA1103	0.7	UP	45.1	5.0		6000	2K7G01	VIDEO	-106.4	67.5	-173.2	8.7	76.1
692.	WAA921	13000.0	-25.5	*14000	0.1	DOWN	47.6	0.0	F9	25000	000000	VIDEO	-92.7	67.2	-173.5	9.0	76.2
354.	HERNDO	13000.0	-38.5	AA1103	0.3	DOWN	45.1	5.0		6000	2K7G01	VIDEO	-106.4	67.8	-173.5	9.0	76.8
198.	MASSEY	13000.0	-34.0	AA1103	0.7	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	68.4	-173.5	9.0	77.4
257.	WESTSP	13000.0	-37.0	AA1103	0.2	DOWN	45.1	4.0		6000	2K7G01	VIDEO	-105.4	68.4	-173.5	9.0	77.4
953.	LIBERT	13000.0	-32.5	AA1133	0.9	UP	45.1	0.0		6000	2K7G01	VIDEO	-101.4	68.8	-173.1	8.6	77.4
681.	WAA925	13000.0	-32.6	AA1133	0.6	UP	45.1	0.0	5750A5C	6000	2PU701	VIDEO	-101.4	68.8	-173.2	8.7	77.5
1041.	BERRYV	13000.0	-29.5	AA1133	0.3	UP	45.1	0.0		12500	24S601	VIDEO	-98.2	68.7	-173.4	8.9	77.6
173.	RXONLY	13000.0	-29.7	*12000	0.8	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	69.1	-173.1	8.6	77.7
540.	FAIRFA	13000.0	-32.1	*12000	0.0	DOWN	41.5	2.0	25000F9	25000	NURAD1	VIDEO	-100.8	68.7	-173.5	9.0	77.7
483.	CLIFTO	13000.0	-38.4	AA1103	0.3	UP	45.1	6.0		6000	2K7G01	VIDEO	-107.4	68.9	-173.4	8.9	77.8
668.	RXONLY	13000.0	-30.0	AA1033	0.4	DOWN	41.5	0.0		25000	NURAD1	VIDEO	-98.8	68.8	-173.5	9.0	77.8
684.	WAA921	13000.0	-23.6	*14000	0.4	DOWN	47.6	0.0	F9	25000	000000	VIDEO	-92.7	69.1	-173.5	9.0	78.1
171.	RXONLY	13000.0	-28.9	*12000	0.8	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	69.8	-173.1	8.6	78.4
813.	JEFFER	13000.0	-35.8	AA1211	1.1	UP	47.6	7.0		6000	2K7G01	VIDEO	-105.9	70.1	-173.0	8.5	78.6
540.	NE1246	13000.0	-32.1	*12000	0.1	DOWN	41.5	3.0	25000F9	25000	NURAD1	VIDEO	-101.8	69.7	-173.5	9.0	78.7
688.	WAA921	13000.0	-23.0	*14000	0.4	DOWN	47.6	0.0	F9	25000	000000	VIDEO	-92.7	69.7	-173.5	9.0	78.7
888.	DAMASC	13000.0	-27.5	AA1312	0.4	DOWN	48.8	0.0		6000	2K7G01	VIDEO	-97.7	70.2	-173.5	9.0	79.2
219.	ABCNEW	13000.0	-28.9	*12000	0.1	DOWN	41.5	0.0		25000	2K8D02	VIDEO	-98.8	69.9	-173.5	9.0	78.9
225.	NEBRAS	13000.0	-34.4	M10100	1.5	DOWN	35.5	0.0		25000	27CX01	VIDEO	-104.8	70.3	-173.5	9.0	79.3

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Rec. Num.	Call Sign	Freq. (Mhz)	C (dBm)	Antenna Type	Tilt (Deg.)	Ang. (dB)	Gain (dB)	LL	Emission Desig.	Bw (Khz)	Equip. Code	Loading	I (dBm)	C/I (dB)	Pwr.Flx (dBW/4Khz)	Adj.I (dB)	Adj.C/I (dB)
906.	OLNEY	13000.0	-33.1	AA1133	0.4	DOWN	45.1	2.0		6000	2K7G01	VIDEO	-103.4	70.3	-173.5	9.0	79.3
176.	RXONLY	13000.0	-28.0	*12000	1.0	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	70.8	-173.0	8.5	79.4
207.	MASSEY	13000.0	-31.6	AA1103	0.5	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	70.7	-173.5	9.0	79.7
473.	WGZ356	13000.0	-28.2	R13600	0.4	UP	42.2	1.0	12500F9	25000	24S607	VIDEO	-99.1	70.9	-173.3	8.8	79.7
170.	RXONLY	13000.0	-27.5	*12000	1.0	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	71.2	-173.0	8.5	79.8
731.	WHITEO	13000.0	-30.6	AA1133	0.2	DOWN	45.1	0.0		6000	2K7G01	VIDEO	-101.4	70.8	-173.5	9.0	79.8
472.	WAF858	13000.0	-27.8	R13600	0.5	UP	42.2	1.0	25000F9	25000	2K8002	VIDEO	-99.1	71.3	-173.3	8.8	80.0
82.	KENTIS	13000.0	-39.6	*11000	0.8	DOWN	35.5	0.0		6000	BUF612	VIDEO	-111.0	71.4	-173.5	9.0	80.4
470.	WJLATV	13000.0	-34.5	R13300	1.2	DOWN	42.2	8.0		25000	24S604	VIDEO	-106.1	71.5	-173.5	9.0	80.5
664.	RXONLY	13000.0	-34.5	R13300	1.2	DOWN	42.2	8.0		25000	24S604	VIDEO	-106.1	71.5	-173.5	9.0	80.5
180.	MASON	13000.0	-30.7	AA1103	0.4	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	71.7	-173.5	9.0	80.7
542.	NE1247	13000.0	-32.1	*12000	0.0	UP	41.5	2.0	25000F9	12500	NURAD1	VIDEO	-103.8	71.7	-173.5	9.0	80.7
669.	RXONLY	13000.0	-27.1	*12000	0.3	DOWN	41.5	0.0		25000	NURAD1	VIDEO	-98.8	71.7	-173.5	9.0	80.7
288.	SKYLIN	13000.0	-29.0	R13600	0.3	DOWN	42.2	3.0	25000F9	25000	2K8002	VIDEO	-101.1	72.1	-173.5	9.0	81.1
431.	AMERIC	13000.0	-26.2	*12000	0.7	UP	41.5	0.0		25000	2VJ903	VIDEO	-98.8	72.6	-173.2	8.7	81.2
662.	RXONLY	13000.0	-26.2	S12500	0.5	UP	41.7	0.0		25000	24S604	VIDEO	-98.6	72.4	-173.3	8.8	81.2
541.	RXONLY	13000.0	-26.1		0.3	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	72.7	-173.4	8.9	81.6
539.	RXONLY	13000.0	-26.0	*12000	0.1	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	72.7	-173.5	9.0	81.7
542.	UNIVER	13000.0	-32.1	*12000	0.1	DOWN	41.5	3.0	25000F9	12500	NURAD1	VIDEO	-104.8	72.7	-173.5	9.0	81.7
1042.	BERRYV	13000.0	-28.5	AA1133	0.2	UP	45.1	0.0		6000	BUF612	VIDEO	-101.4	72.9	-173.4	8.9	81.8
428.	WGWS956	13000.0	-22.2	A13420	0.8	DOWN	45.1	0.0		25000	2K8002	VIDEO	-95.2	72.9	-173.5	9.0	81.9
473.	SKYLIN	13000.0	-28.2	R13600	0.5	DOWN	42.2	3.0	12500F9	25000	24S607	VIDEO	-101.1	72.9	-173.5	9.0	81.9
826.	YELLOW	13000.0	-31.6	AA1133	3.8	UP	45.1	5.0		6000	2K7G04	VIDEO	-106.4	74.7	-171.9	7.4	82.1
471.	SKYLIN	13000.0	-24.8	R13600	0.7	DOWN	42.2	0.0		25000	2K8002	VIDEO	-98.1	73.3	-173.5	9.0	82.3
177.	RXONLY	13000.0	-24.7	*12000	1.4	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	74.0	-172.8	8.3	82.4
691.	WAA921	13000.0	-25.5	AA1203	0.2	DOWN	47.6	0.0	5750A5C	6000	2PUY01	VIDEO	-98.9	73.4	-173.5	9.0	82.4
178.	RXONLY	13000.0	-24.6	*12000	1.4	UP	41.5	0.0		25000	NURAD1	VIDEO	-98.8	74.2	-172.8	8.3	82.5
897.	MIDDLE	13000.0	-25.4	AA1211	0.3	DOWN	47.6	0.0		6000	2K7G01	VIDEO	-98.9	73.5	-173.5	9.0	82.5
614.	ARLING	13000.0	-28.2	A12420	0.8	DOWN	41.4	0.0	12500F9	12500	2K8001	VIDEO	-101.9	73.7	-173.5	9.0	82.7
966.	LITTLE	13000.0	-24.8	AA1211	0.6	UP	47.6	0.0		6000	2K7G01	VIDEO	-98.9	74.0	-173.2	8.7	82.7
291.	MCLEAN	13000.0	-28.6	AA1103	1.0	DOWN	45.1	1.0		6000	2K7G01	VIDEO	-102.4	73.8	-173.5	9.0	82.8
962.	LITTLE	13000.0	-24.4	M1420	0.6	UP	47.8	0.0		6000	2K7G01	VIDEO	-98.7	74.2	-173.2	8.7	82.9
241.	RECEIV	13000.0	-24.7	*12000	0.0	DOWN	41.5	0.0		25000	24S604	VIDEO	-98.8	74.1	-173.5	9.0	83.1
424.	WGWS955	13000.0	-24.6	A12420	0.5	DOWN	41.4	0.0		25000	2K8002	VIDEO	-98.9	74.3	-173.5	9.0	83.3
439.	RXONLY	13000.0	-30.4	*11000	1.5	DOWN	35.5	0.0		25000	2K8002	VIDEO	-104.8	74.3	-173.5	9.0	83.3
710.	WG1759	13000.0	-18.2	AA1214	0.3	UP	47.6	0.0		25000	22FA05	VIDEO	-92.7	74.5	-173.4	8.9	83.3
706.	WG1765	13000.0	-18.2	AA1214	0.4	DOWN	47.6	0.0		25000	22FA05	VIDEO	-92.7	74.5	-173.5	9.0	83.5
149.	WAF859	13000.0	-24.3	A12420	0.9	DOWN	41.4	0.0		25000	2K8002	VIDEO	-98.9	74.6	-173.5	9.0	83.6
288.	WG1780	13000.0	-29.0	R13600	0.2	UP	42.2	6.0	25000F9	25000	2K8002	VIDEO	-104.1	75.1	-173.4	8.9	83.9
663.	RXONLY	13000.0	-28.9	A11401	1.8	UP	35.5	0.0		25000	24S604	VIDEO	-104.8	75.9	-172.7	8.2	84.0
681.	WAA921	13000.0	-23.6	AA1211	0.7	DOWN	47.6	0.0	5750A5C	6000	2PUY01	VIDEO	-98.9	75.3	-173.5	9.0	84.3
179.	WASHIN	13000.0	-28.9	A11401	0.9	UP	35.5	0.0		25000	2UTF02	VIDEO	-104.8	75.9	-173.1	8.6	84.5
275.	BETHES	13000.0	-23.0	AA1211	0.2	UP	47.6	0.0		6000	PASSIV	VIDEO	-98.9	75.9	-173.4	8.9	84.8
686.	WAA921	13000.0	-21.8	A15120	0.6	DOWN	48.8	0.0	5750A5C	6000	2PUY01	VIDEO	-97.7	75.9	-173.5	9.0	84.9
614.	WGZ205	13000.0	-28.2	AA1033	0.7	UP	41.5	6.0	25000F9	25000	2K8002	VIDEO	-104.8	76.6	-173.1	8.6	85.2
284.	WG1780	13000.0	-18.1	AA1142	0.4	UP	45.1	0.0		25000	2K8002	VIDEO	-95.2	77.1	-173.3	8.8	85.9
152.	WAF858	13000.0	-25.1	AA1036	0.4	UP	41.0	0.0		12500	24S607	VIDEO	-102.3	77.2	-173.3	8.8	86.0